



IN THE U.S. PATENT AND TRADEMARK OFFICE

Applicant: Ted Ichino

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Group: 1616

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Examiner: N. Levy

For: Sensorially Active Substance Embedded in Plastic

Declaration

On 05 February 1997, I met with Darryl of R&S Plastics, 1100 E. 2nd Street in Pomona, California. I showed Darryl some toxicology reports on Bitrex and began to dissolve Bitrex in chloroform. This solution was never used; Darryl instead applied pure Bitrex granules to a hot-rolled sheet of clear PVC. The Bitrex dissolved directly in the molten PVC, producing a clear plastic with a light brown tint (approx. 0.2 grams/100 grams flexible PVC). Darryl speculated that the Bitrex was being dissolved by the plasticizers that make the PVC flexible and also mentioned the possibility that anti-static compounds could bring the Bitrex to the surface should there be an affinity between the two. Darryl made a control tube of untreated PVC. He refused to accept payment.

I subsequently took the plastic to the local pet store, Pet Mart. I assured the proprietor that her rats would be safe even if they ate the plastic. She tossed the treated PVC and the control into a cage with perhaps 20 rats and I went home. When I returned the next day, there was no sign of either tube of PVC, and all of the rats in the cage were sound asleep (in contrast to the two other cages, where the rats were jumping around vigorously). The proprietor didn't seem overly concerned about the condition of her rats, and I left promptly.

The next week, I returned to R&S Plastics. I had Darryl sign a non-disclosure agreement, after which he made a much stronger batch of treated plastic. We weighed out 2.5 grams of Bitrex and 100 grams of PVC granules and Darryl began to add the Bitrex to the molten plastic. The treated plastic turned light brown, then darker brown, then red, darker

red, and finally an angry red. The PVC began to lose cohesiveness before the entirety of the Bitrex could be added to it, and an unpleasant acrid odor filled the shop. We weighed the residual Bitrex and determined that approximately 2.2 grams had gone into the plastic before it reached saturation. Darryl made a few rolls of this saturated solution, and also coated one end of an automobile hose with it. He didn't want to bother with a control, so I took the treated plastic, thanked him, and left.

I went back to the pet store, and this time I warned the proprietor that the rats could die if they ate the treated plastic. I told her that I would pay for any dead rats. She emptied one of her cages save for four or five rats, and we threw the treated hose into this cage. When I returned the next day, every one of her rat cages was filled to capacity, and the rats were swarming around. I was appalled, but she assured me that "Those rats don't want nothing to do with that hose" and donned a glove to retrieve the hose. It was covered in rat feces, as the rats had voided on it to express their displeasure. Once I had rinsed the hose off and examined it more closely, a number of fine score marks parallel with the length of the hose could be discerned.

The roll of treated PVC has sat in my garage since 1997. I placed it into a ZipLock bag in an attempt to reduce the bitter particulates that can be tasted after the treated plastic is handled. Even after rinsing this roll off, the particles can still be tasted—if not immediately, then as a surprise some minutes or hours later. The treated plastic is still a uniform original angry red; the same color of the original saturated solution. Had there been leaching of the Bitrex, it could be reasonably expected to have produced a color change, especially in light of the spectrum of colors that the plastic exhibited en route to saturation with Bitrex. The potency of the Bitrex is unimpaired, as witnessed by the sharp localized bitter taste explosions that occur when the treated plastic is handled. Rinsing that plastic to remove surface deposits of Bitrex and moving the plastic to a new bag does not eliminate these flavor sensations.

Alexander mistakenly teaches, "A representative example of an adverse agent which is a bittering agent is denatonium benzoate (Bitrex), (0.001-0.03% by weight of the

composition).” (US 5,135,744) Note that the upper bound cited by Alexander is nearly an order of magnitude less than a concentration empirically determined by Applicant to be ineffectual when dissolved in plastic. Were this concentration of Bitrex to be freely available in an aqueous solution, it would undoubtedly act as an adverse [sic] agent. However, the Bitrex is not freely available but rather bound in a plastic matrix, and the deterrent effect of the Bitrex is considerably attenuated due to this lack of free availability.